

Teaching Statement

David Isaac Wolinsky

isaac.wolinsky@gmail.com <http://www.davidwolinsky.com>

Education should provide the foundation necessary for a successful career. As a mentor and teacher, I take it as my responsibility to equip students with the knowledge and abilities to perform well in the classroom but more importantly with the transition into post graduate life. Achieving this goal requires flexibility as there exists no one size fits all approach to education. Each generation of students and even students within a generation have different backgrounds and methods for learning. I enjoy the process of taking complex materials and making them accessible to students using a variety of approaches. In computer science, I believe that students learn best in a project oriented curriculum that emphasizes the concepts taught in class in order to produce a tangible result outside. My teaching continues outside the classroom, where I often work with students at an individual level helping them to recognize their strengths, teaching them how to strengthen their weaknesses, and assisting them in their development of independent, critical thinking skills.

Thus far in my academic career, I have taught and assisted in teaching several classes as well as mentoring students. I am currently instructing my first, independent class. In addition, I have co-instructed a seminar for the past four years, been a teacher's assistant for 3 different classes; mentored 3 high school students, 10 undergraduate students, and 10 graduate students. My research projects have been used as educational tools for multidisciplinary research in cyber-infrastructure, computer architecture, distributed computing, and even coastal engineering. As a both an instructor and as a teacher's assistant, I have developed and organized lecture material, projects, and aided students' course work. As a mentor, I have put together projects to acclimate students with new environments and problems as well as guide students through the perils of research in order to make interesting novel and publishable research contributions. My research projects have a broad impact outside my field, giving me an opportunity to interact with research groups in different fields. In addition, I have experience teaching and mentoring individuals from various backgrounds around the world.

At my course at Yale, we are covering intermediate to advanced operating systems. To guide students through my course, I offer students a clear roadmap, via a schedule on the course web site, including lecture topics, preparatory reading, and slides from previous lectures. The preparatory material contains readings from more general and conceptual text books, concrete examples, and research and technical papers. Students attending my class are expected to engage in discussion. While some students do this naturally, I have found asking questions very beneficial and delaying for questions from those with confusion in their eyes. The lectures follow the semester long course project, first discussing the concepts followed by concrete examples and sometimes even code. In addition, my course materials will be used by another faculty at another university during the Spring semester.

My first experience in teaching has not been without challenges. Despite the success of the course project, the results of the first exam were below my expectations. While undesirable, it gave me an opportunity to emphasize to students the importance of going beyond completing assignments, i.e. successful compilation and passing test cases, to actually understanding the process and the mechanisms behind the scenes. To address this, I went over the test, discussed with students, using examples, when conceptual understanding is sufficient and when concrete understanding is necessary. As a result of my efforts, students have become even more engaged in class. Perhaps in the future, my first exam should come earlier in the semester.

During one summer at Florida, a recent doctoral student came to my office looking for an opportunity in my adviser's research group, hoping to do interesting work in distributed systems. We quickly went to work constructing a long term project of building an easier to use application programming interface (API) for our peer-to-peer software, Brunet. In order to obtain this goal, we set many easier milestones guiding him through Brunet. We continued to meet regularly throughout the semester discussing various facets of the code and his current progress. By the end of the semester, he achieved all of our goals: a useful API and several demo applications with wiki pages too. My adviser, impressed with his work, appointed the student as a research assistant in our lab. In this position, he has continued his success and at the same time became a competent colleague and collaborator. Together we have worked on many systems resulting in many publications; and, most importantly, we had a good time and learned together, that's what education is to me.

As a mentor at Yale, I have had the opportunity to work more intimately with students and fine tune my advising skills. I view each student as a puzzle solved only once that student has become an equal, capable of finding and solving problems independently. When working with a student for the first time, I try to understand their capabilities and give them some initial projects that target their strengths giving them confidence. Afterward, I will push the student onto more daunting tasks. When a student faces a challenge, we discuss the merits and faults of their current approach and plan alternatives. Upon success, I challenge the student to find deeper, more challenging problems or better, more general solutions. At some point in time, students must learn for themselves, but as an educator, I can provide a safe environment increasing the likelihood of success. We have been successful thus far publishing at many top venues.

My interest and ability to teach includes, though is not limited to, classes on distributed computing, operating systems, computer architecture, and computer security and privacy as well as digital logic and design and microprocessors. As an incoming faculty, I prefer classes where I will have more opportunity to directly interact with students, so that as I teach them, they teach me. Furthermore, it will give me an opportunity to have firsthand experience with highly talented students, who I could mentor through their graduate degrees.

I have specific interest in teaching a general systems course and a software engineering course. My approach to teaching the systems course would emphasize the software, operating system, and hardware relationship. The class would focus on preparing both undergraduates and graduates students for industry positions and graduate study by teaching students proper design principles. Students will be required to solve challenging problems through simple problems that then evolve into complex challenges, nurturing their ability to think independently and creatively.

I am excited about the opportunity to teach and mentor students. Teaching students well will directly impact my success as a researcher, capable students produce better research results. My experience has equipped me with the ability to help students succeed, and I look forward to new opportunities and challenges in teaching.